more than the placarded *g* limit is aerodynamically available. Only in the direst circumstances would a pilot knowingly exceed the structural limit of his craft. Given the choice between certain ground impact or possibly bending or breaking the aircraft, some pilots may prefer to have the option of the latter.

Return to Toulouse was via radar vectors to an instrument landing system approach to runway 32L. Rosay loaded and activated the approach in the FMGS. He also entered the surface winds into the MCDU. The first approach was flown with the flaps set to "4". Glideslope intercept was at 3,000ft MSL, about 2,500ft AGL.

The PFD's split-cue flight detector allowed me to track precisely both the localiser and glideslope during the approach. The thrust levers were placed in the CL detent, and stayed there throughout the approach. The approach was flown in managed speed, the autothrust maintaining a minimum airspeed above 1.23VSTALL minus the ground headwind component.

Because the winds were stronger at altitude, the practical effect was that as the aircraft tracked the glideslope, the target airspeed decreased from 128kt at 2,000ft AGL to 123kt at 1,000ft AGL. At 50ft radar altitude (RA), the A318's pitch axis flight control laws changed to a pitch attitude command system, with neutral stick commanding the actual pitch attitude at 50ft RA, about 6° nose-up for this approach.

At 30ft RA, the flight controls lowered the neutral stick pitch attitude to 2° nose-up over 8s, forcing the pilot to pull aft to maintain the approach attitude. I started the flare manoeuvre at about 30ft, retarding the thrust levers from the CL detent at 15ft. The flare manoeuvre itself felt like that of a conventional aircraft. The A318 touched down smoothly on the runway centreline about 400m from the approach end.

Touch-and-go manoeuvre

Once on the runway, Rosay set the flaps to "3" and pitch trim to 1 unit nose-up for a touch-and-go manoeuvre. I advanced both thrust levers to the TOGA detent, the engines stabilising at 87.3% N_1. Rosay called "rotate" at 120kt.

After lifting off the runway in a 10° nose-high attitude, he pulled the right engine to idle. Only about 60% of the available rudder displacement, as shown on the ECAM flight control display, was required to maintain runway heading.

Centring the sideslip index on the PFD required about 15° of rudder trim to zero out rudder forces. It should be noted that in the event of an engine failure, the sideslip index becomes a beta target, commanding optimum performance for the asymmetric thrust condition and allowing a small amount of sideslip. Flap setting for an engine out approach, position "3" or the full position "4" setting, is a function of required go-around performance.

With only 4,760kg of fuel, flaps "4" would have provided adequate go-around performance, but I elected to use flaps "3" to experience another landing condition. The engine out approach was flown in managed speed like the previous one. I centred the rudder trim after intercepting the glideslope.

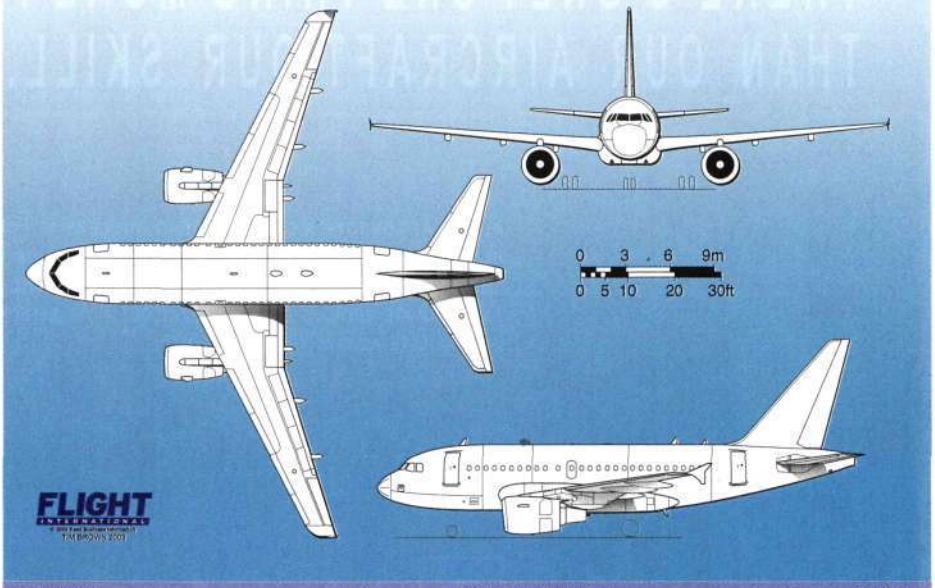
Only a slight amount of left rudder was required to keep the beta target centred at the approach speed of 130kt. Again I started the flare manoeuvre at about 30ft AGL. I only had to relax pressure slightly on the left rudder pedal as I retarded the thrust lever out of the CL detent at 15ft AGL. Again the aircraft touched down softly on the runway centreline, within 500m of the approach end of the runway. After clearing the runway, taxi back to the ramp and shutdown procedures were straightforward.

During my flights the A318 showed itself to be a commendable addition to the single-aisle A320 family. It offers the same level of passenger comfort as its larger siblings, yet in a smaller package more suited to lightly travelled routes.

For airlines that already operate other members of the A320 family, those seeking a 100-seat aircraft may find the A318 the ideal choice because it has the advantage of common pilot type rating and spares requirements, generating savings.

As a standalone product for the 100-seat niche, the decision becomes less clear. Both Boeing and Embraer offer 100-seat aircraft at a substantially lower price, roughly $35.5 million for the Boeing 717 and $31.3 million for the Embraer 195. Although Airbus has orders for 84 of its smallest airliner, it has not won any orders from airlines that do not already operate A320 family aircraft. As a low-risk derivative of the A320, the A318 will doubtless be a commercial success for Airbus while offering airlines a highly capable and technologically advanced 100-seat airliner. ■

AIRBUS A318 GENERAL ARRANGEMENT



Length (m)	31.44	Fuel capacity (litres)	23,860
Height (m)	12.56	Baseline powerplants	21,600lb CFM56-5B8/P
Wingspan (m)	34.09		22,100lb PW6122
Wing area (m^2)	122.6	Optional powerplants	23,300lb CFM56-5B9/P
Maximum take-off weight baseline (kg)	59,000		23,800lb PW6124
Option 1 (kg)	61,500	Two-class accommodation	107 (8/99)
Option 2 (kg)	63,000	One-class accommodation	117 (32in pitch)
Option 3 (kg)	64,500	High density	132 (29/30in pitch)
Option 4 (kg)	66,000	Underfloor cargo capacity	21.21 m^3
Option 5 (kg)	68,000	Range baseline (km)	2,750
Maximum landing weight (kg)	56,000	MTOW option 1 (km)	3,700
Option (kg)	57,500	MTOW option 2 (km)	4,350
Maximum zero fuel weight (kg)	53,000	MTOW option 3 (km)	4,900
Option (kg)	54,500	MTOW option 4 (km)	5,350
Operating weight empty (kg-typical)	38,400	MTOW option 5 (km)	6,000
Maximum payload (kg)	14,000	Maximum operating speed (Mach)	0.82